IN THE CLAIMS:

Please amend claims 1, 3-5, 7-8, 15, 20, 24, 26, 30, and 32.

Please cancel claims 9, 10, 17, 25, and 33-34.

1. (Currently amended) A power generation system comprising:

a generator to generate electrical power;

a DC storage or source device (DCSSD);

a power bus coupled to said generator; and

a bi-directional conversion unit coupled between said power bus and said DCSSD, said bi-directional conversion unit comprising a bi-directional circuit having switching elements, and a controller to generate control signals to selectively activate the switching elements to control a direction and amount of electrical power flowing between said DCSSD and the power bus through said bi-directional current circuit, wherein in a first direction power flows from said power bus to said DCSSD and in a second direction power flows from said DCSSD to said power bus. [capable of transitioning between a first direction wherein electrical power flows from said power bus to said DCSSD and a second direction wherein electrical power flows from said DCSSD to said power bus.]

2. (Original) The system of claim 1, wherein said DCSSD is a battery.

3. (Currently amended) The system of claim 2, wherein electrical power demanded by a load applied to the system is supplied by at least one of said generator and said battery via said power bus.

4. (Currently amended) The system of claim 2, wherein electrical power demanded by a load applied to the system is supplied by said power bus without an interruption during transitioning of said bi-directional conversion unit from said first direction of power flow to said second direction of power flow.

5. (Currently amended) The system of claim 2, wherein, when the generator is actively generating electrical power, battery power is used to compensate a for drop in the voltage level of the power bus, to provide power to a load without interruption[, at least] in [one of the following] a situation[s: (1)] selected from the group comprising when load demand increases, [(2) ]when the power bus is experiencing a load surge, and [(3) ]when said generator is being driven at low RPM.

6. (Original) The system of claim 1, further comprising an AC inverter coupled to receive DC power from said power bus and convert said DC power into AC power.

7. (Currently amended) The system of claim [5]6, wherein electrical power generated by said generator supplies AC load when the AC inverter is turned and any remaining power that the AC load does not require is used to recharge said battery.

8. (Currently amended) The system of claim 1, wherein said bi-directional conversion unit operates in said first direction of power flow when the voltage level of the power bus exceeds an upper threshold value and operates in said second direction of power flow when the voltage level of the power bus drops below a lower threshold value, said upper threshold value being set at a defined value below the power bus voltage level maintained by the controller when the generator is actively generating power.

9. (Cancelled)

10. (Cancelled)

11. (Original) The system of claim 2, further comprising a thermal sensor located at the battery to provide battery temperature information, wherein a battery charge current supplied to recharge the battery is regulated according to the battery temperature information.

12. (Original) The system of claim 1, further comprising a generator drive coupled between the generator and the power bus, said generator drive capable of adjusting the output power of the generator.

13. (Original) The system of claim 12, further comprising a rotational speed sensor coupled to said generator and output therefrom is input to a processor, wherein said processor controls the

output power generated by the generator via the generator drive to match the electrical power supplied to loads.

14. (Original) The system of claim 13, wherein said processor is configured to determined if the generator is capable of producing sufficient power to match the power demanded by the loads, wherein if the current generator rotational speed is inadequate to meet the load demand, the processor is configured to send control signals to vary the speed of a drive device supplying mechanical force to the generator.

15. (Currently amended) A power generation system comprising:

a generator to generate [an] electrical power;

an electronic control unit coupled to said generator, said electrical control unit containing a power supply bus; and

a bi-directional conversion unit comprising a bi-directional power supply circuit coupled between said power bus and a battery, said bi-directional power supply circuit capable of transitioning between a first direction wherein electrical power flows from said power bus to a battery and a second direction wherein electrical power flows from said battery to said power bus. [coupled to power bus to control flow of electrical power to and from said power bus.]

16. (Original) The power generation system of claim 15, wherein said electronic control unit further comprises a generator drive to selectively adjust the power produced by the generator

17. (Cancelled)

18. (Original) The power generation system of claim 15, wherein said electrical control unit further comprises an AC inverter coupled to receive DC power from said power bus and convert said DC power into AC power.

19. (Original) The power generation system of claim 18, further comprising a battery pack coupled to said bi-directional conversion unit, wherein electrical power generated by said generator supplies AC load and any remaining power that the AC load does not require is used to recharge said battery pack.

20. (Currently amended) The power generation system of claim 19, wherein, when the generator is actively generating electrical power, battery power stored in said battery pack is used to compensate for a drop in the voltage level of the power bus, to provide power to a load without interruption[, at least] in [one of the following] a situation[s: (1)] selected from the group comprising when load demand increases, [(2) ]when the power bus is experiencing a load surge, and [(3) ]when said generator is being driven at low RPM.

21. (Original) The power generation system of claim 15, which includes the ability to derive power from both said generator and said battery pack to prevent AC voltage brownouts when power devices that require high levels of temporary power.

22. (Original) The power generation system of claim 15, which includes an idle control that sets the vehicle's idle speed, working in conjunction with said inverter charger unit such that when high power levels is demanded, additional power is derived from said battery pack via the bi-directional power supply, eliminating sudden application of torque by said generator and thus eliminating engine RPM fluctuations.

23. (Original) The power generation system of claim 15, further comprising a thermal sensor for monitoring the temperature of the batteries in said battery pack, and adjust the recharge voltage level established in said inverter charger unit such that the batteries are recharged in an optimal way to extend said battery pack life and maximum amount of stored charge.

24. (Currently amended) A method <u>of generating power</u> comprising:

generating electrical power;

charging a power bus using the electrical power generated;

charging a battery using the electrical power from said power bus if <u>a</u> voltage level of said power bus exceeds an upper threshold value; [and]

charging said power bus using the electrical power from said battery if the voltage level of said power bus drops below a lower threshold value[.]<u>; and</u>

<u>adjusting the electrical power generated if load demand exceeds the electrical power generated and the electrical power supplied by the battery.</u>

25. (Cancelled)

26. (Currently amended) The method of claim [25]24, wherein said electrical power is generated by a generator which is driven by an engine,

27. (Original) The method of claim 26, further comprising adjusting said electrical power generated by operating said generator by varying AC voltage level applied to generator stator coils while maintaining optimum slip in order to maintain the power bus within a defined voltage range.

28. (Original) The method of claim 26, further comprising adjusting said electrical power generated by adjusting the speed of the engine driving the generator in order to maintain the power bus within a defined voltage range.

29. (Original) The method of claim 24, further comprising providing AC and DC electrical power simultaneously.

30. (Currently amended) A power generation system comprising:

at least one electrical power storage device;

at least one electrical power source device;

at least one load; and

a power supply controller coupled between said at least one electrical storage device and said at least one electrical source device to control the flow of electrical energy between said storage device and said source device and to control the flow of electrical energy demanded by said at least one load from at least one of said storage and source devices[.]; wherein said power supply controller comprises a power bus and a bi-directional conversion unit capable of transitioning between a first direction wherein electrical power flows from said power bus to said at least one electrical storage device and a second direction wherein electrical power flows from said at least one electrical storage device to said power bus.

31. (Original) The system of claim 30, wherein said at least one electrical storage device is a battery and said at least one electrical source device is a generator.

32. (Currently amended) The system of claim 30, wherein said at least one load comprises an AC load and a DC load.

33. (Cancelled)

34. (Cancelled)